US009332180B2

(12) **United States Patent**
Gyotoku

(10) **Patent No.: US 9,332,180 B2**
(45) **Date of Patent: May 3, 2016**

(54) **IMAGE CAPTURE APPARATUS**

(71) Applicant: **CANON KABUSHIKI KAISHA**, Tokyo (JP)

(72) Inventor: **Takashi Gyotoku**, Kawasaki (JP)

(73) Assignee: **Canon Kabushiki Kaisha**, Tokyo (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 292 days.

(21) Appl. No.: **14/010,348**

(22) Filed: **Aug. 26, 2013**

(65) **Prior Publication Data**

US 2013/0342711 A1 Dec. 26, 2013

Related U.S. Application Data

(63) Continuation of application No. PCT/JP2013/060313, filed on Apr. 4, 2013.

(30) **Foreign Application Priority Data**

Apr. 10, 2012 (JP) 2012-089689

(51) **Int. Cl.**
H04N 5/232 (2006.01)

(52) **U.S. Cl.**
CPC ***H04N 5/23232*** (2013.01); ***H04N 5/23229*** (2013.01); *H04N 5/23293* (2013.01)

(58) **Field of Classification Search**
CPC G02B 27/0075; G02B 27/146; G02B 27/1066; H04N 13/0235; H04N 5/2258; H04N 5/23232; H04N 5/23229; H04N 5/23293
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

8,754,952	B2 *	6/2014	Takagi	H04N 1/00413 348/211.5
2007/0140579	A1	6/2007	Miyashita	
2010/0208098	A1 *	8/2010	Ogawa	H04N 5/23245 348/223.1
2011/0037877	A1 *	2/2011	Tamaru	H04N 5/23229 348/239
2012/0038800	A1 *	2/2012	Jang	H04N 1/4092 348/252

FOREIGN PATENT DOCUMENTS

JP	2003-60980	A	2/2003
JP	2007-13475	A	1/2007
JP	2007-81685	A	3/2007
JP	2007-151189	A	6/2007
JP	2010-50635	A	3/2010
JP	2011-191340	A	9/2011

* cited by examiner

Primary Examiner — Twyler Haskins
Assistant Examiner — Peter Chon
(74) *Attorney, Agent, or Firm* — Canon U.S.A., Inc. IP Division

(57) **ABSTRACT**

An image capture apparatus includes an image capture unit, an image processing unit, an image quality adjusting unit, and an output unit. The image capture unit generates first image data using an image capture device. The image processing unit generates second image data from the first image data so that an image quality of the second image data corresponds to a flat image quality. The image quality adjusting unit converts the second image data into third image data by adjusting the image quality of the second image data to be a predetermined image quality. The output unit outputs the third image data instead of the second image data to an external apparatus if a predetermined condition is satisfied.

29 Claims, 7 Drawing Sheets

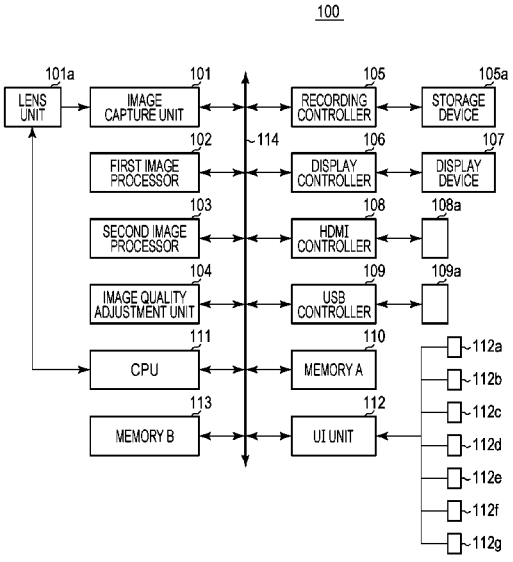

FIG. 1

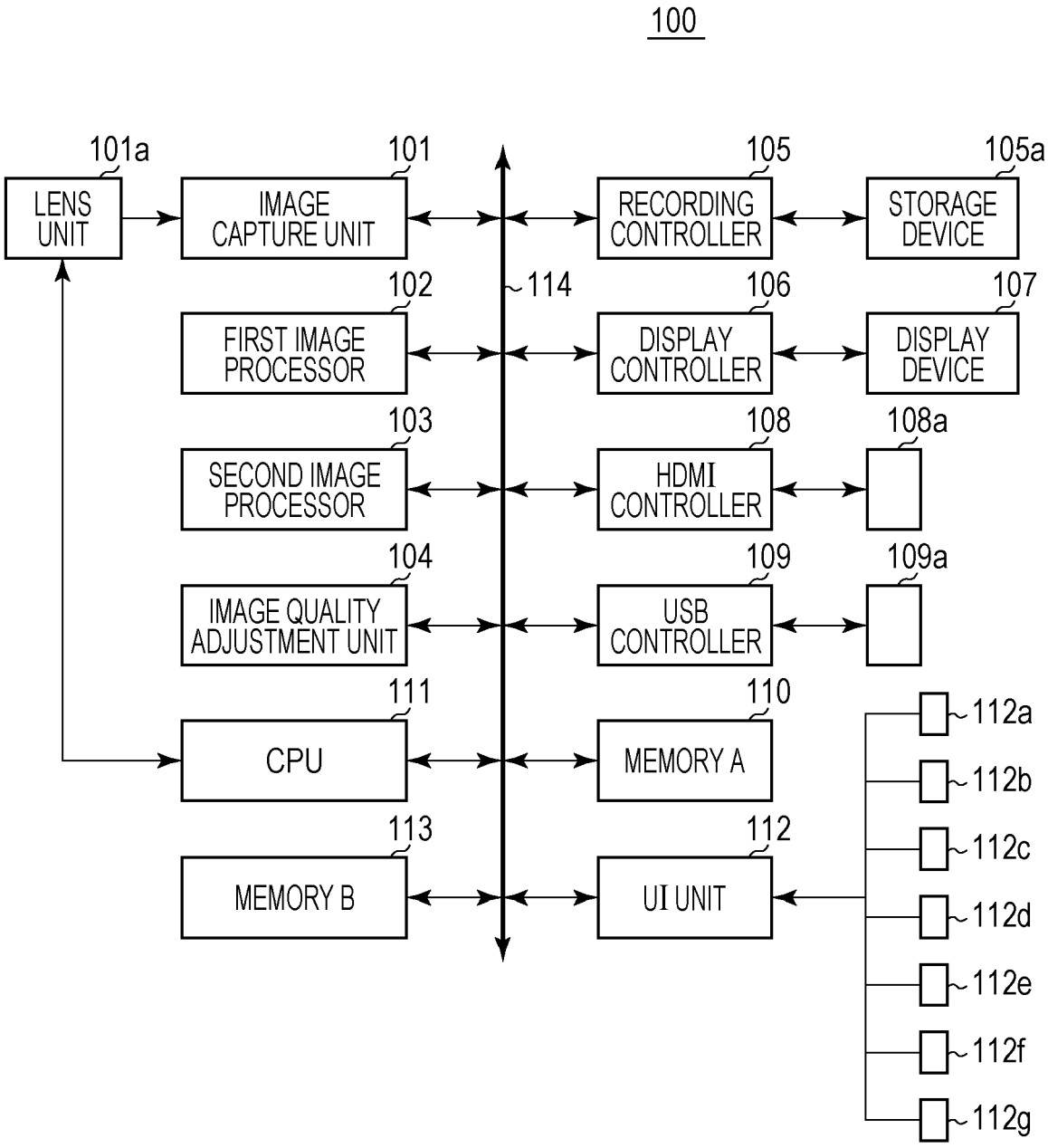
100
101a
LENS UNIT
101
IMAGE CAPTURE UNIT
105
RECORDING CONTROLLER
105a
STORAGE DEVICE
102
FIRST IMAGE PROCESSOR
114
106
DISPLAY CONTROLLER
107
DISPLAY DEVICE
103
SECOND IMAGE PROCESSOR
108
HDMI CONTROLLER
108a
104
IMAGE QUALITY ADJUSTMENT UNIT
109
USB CONTROLLER
109a
111
CPU
110
MEMORY A
112a
112b
112c
112d
112e
112f
112g
113
MEMORY B
112
UI UNIT

FIG. 2

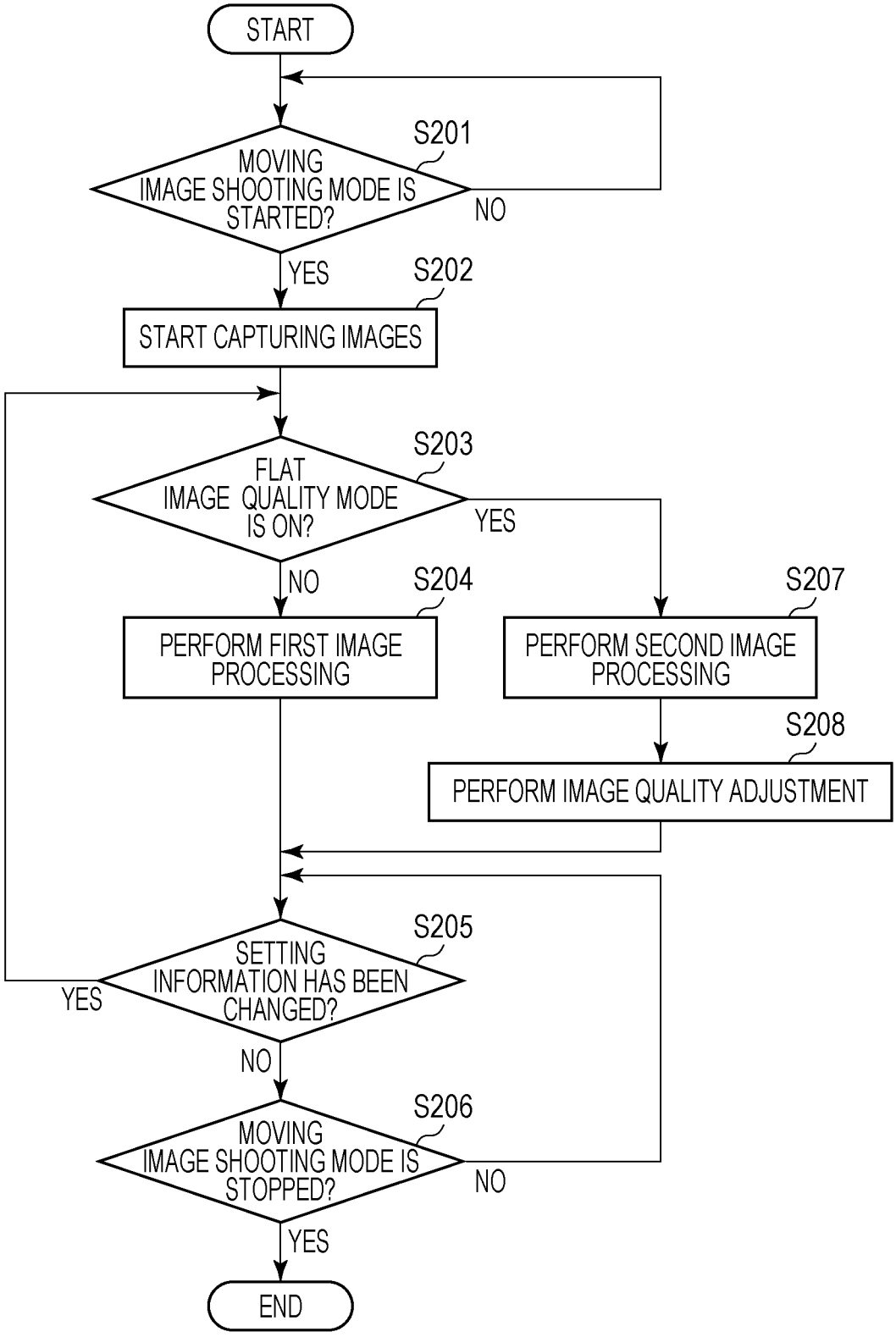
START
S201
MOVING IMAGE SHOOTING MODE IS STARTED?
NO
YES
S202
START CAPTURING IMAGES
S203
FLAT IMAGE QUALITY MODE IS ON?
YES
NO
S204
PERFORM FIRST IMAGE PROCESSING
S207
PERFORM SECOND IMAGE PROCESSING
S208
PERFORM IMAGE QUALITY ADJUSTMENT
S205
SETTING INFORMATION HAS BEEN CHANGED?
YES
NO
S206
MOVING IMAGE SHOOTING MODE IS STOPPED?
NO
YES
END

FIG. 3

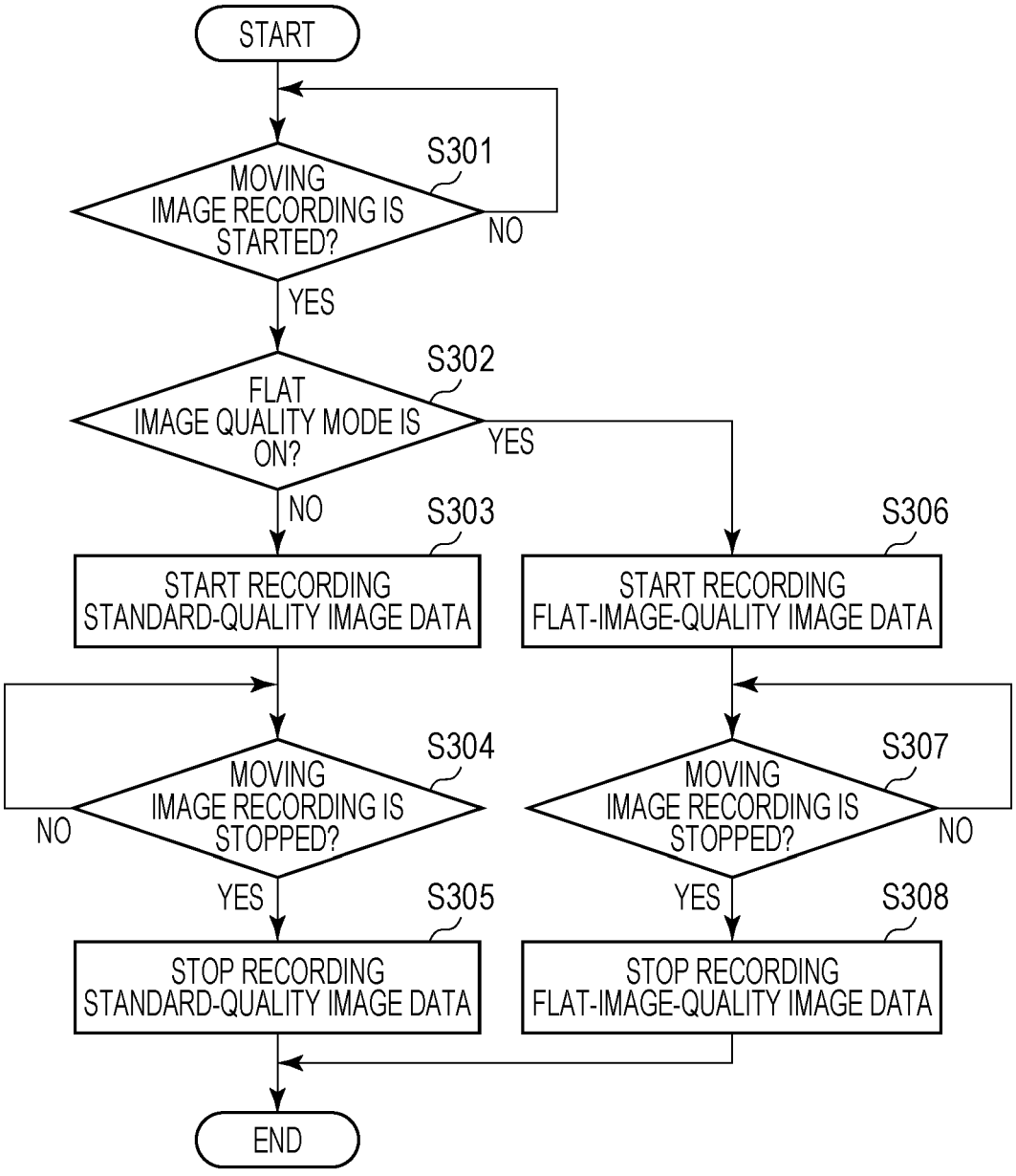
START
S301
MOVING IMAGE RECORDING IS STARTED?
NO
YES
S302
FLAT IMAGE QUALITY MODE IS ON?
YES
NO
S303
START RECORDING STANDARD-QUALITY IMAGE DATA
S306
START RECORDING FLAT-IMAGE-QUALITY IMAGE DATA
S304
MOVING IMAGE RECORDING IS STOPPED?
NO
S307
MOVING IMAGE RECORDING IS STOPPED?
NO
YES
S305
STOP RECORDING STANDARD-QUALITY IMAGE DATA
YES
S308
STOP RECORDING FLAT-IMAGE-QUALITY IMAGE DATA
END

FIG. 4

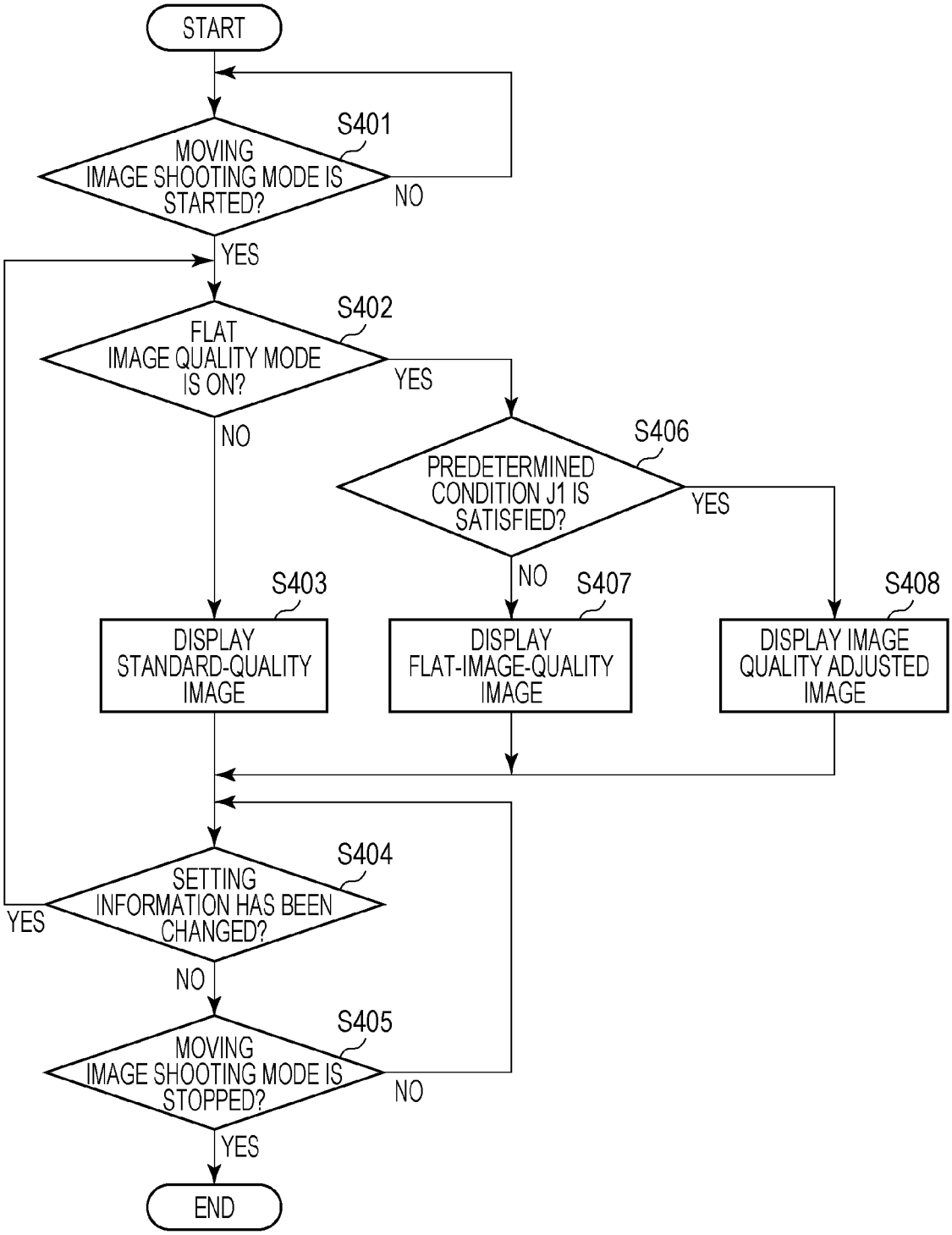
START
S401
MOVING IMAGE SHOOTING MODE IS STARTED?
NO
YES
S402
FLAT IMAGE QUALITY MODE IS ON?
YES
NO
S406
PREDETERMINED CONDITION J1 IS SATISFIED?
YES
NO
S403
DISPLAY STANDARD-QUALITY IMAGE
S407
DISPLAY FLAT-IMAGE-QUALITY IMAGE
S408
DISPLAY IMAGE QUALITY ADJUSTED IMAGE
S404
SETTING INFORMATION HAS BEEN CHANGED?
YES
NO
S405
MOVING IMAGE SHOOTING MODE IS STOPPED?
NO
YES
END

FIG. 5

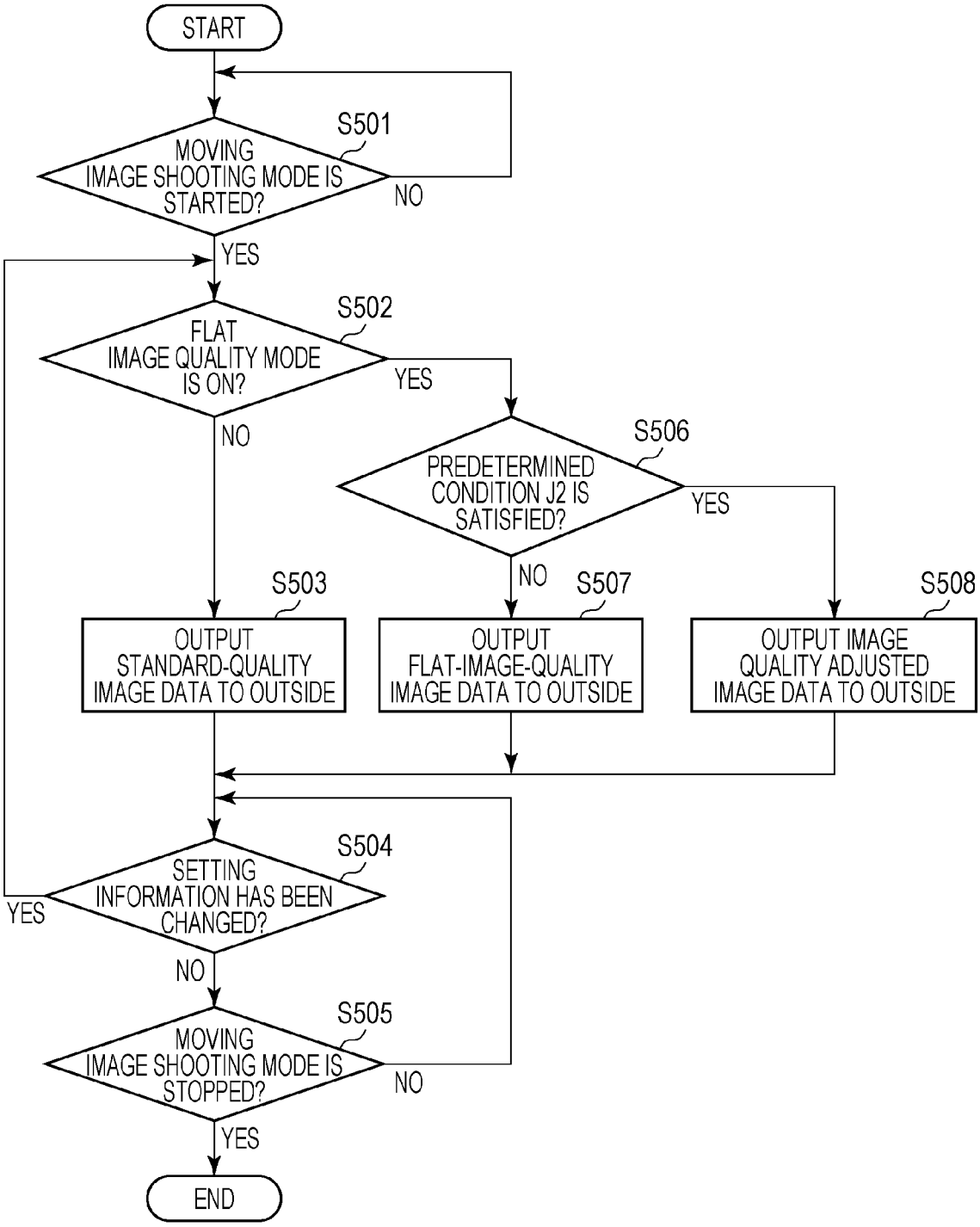
START
S501
MOVING IMAGE SHOOTING MODE IS STARTED?
NO
YES
S502
FLAT IMAGE QUALITY MODE IS ON?
YES
NO
S506
PREDETERMINED CONDITION J2 IS SATISFIED?
YES
NO
S503
OUTPUT STANDARD-QUALITY IMAGE DATA TO OUTSIDE
S507
OUTPUT FLAT-IMAGE-QUALITY IMAGE DATA TO OUTSIDE
S508
OUTPUT IMAGE QUALITY ADJUSTED IMAGE DATA TO OUTSIDE
S504
SETTING INFORMATION HAS BEEN CHANGED?
YES
NO
S505
MOVING IMAGE SHOOTING MODE IS STOPPED?
NO
YES
END

FIG. 6

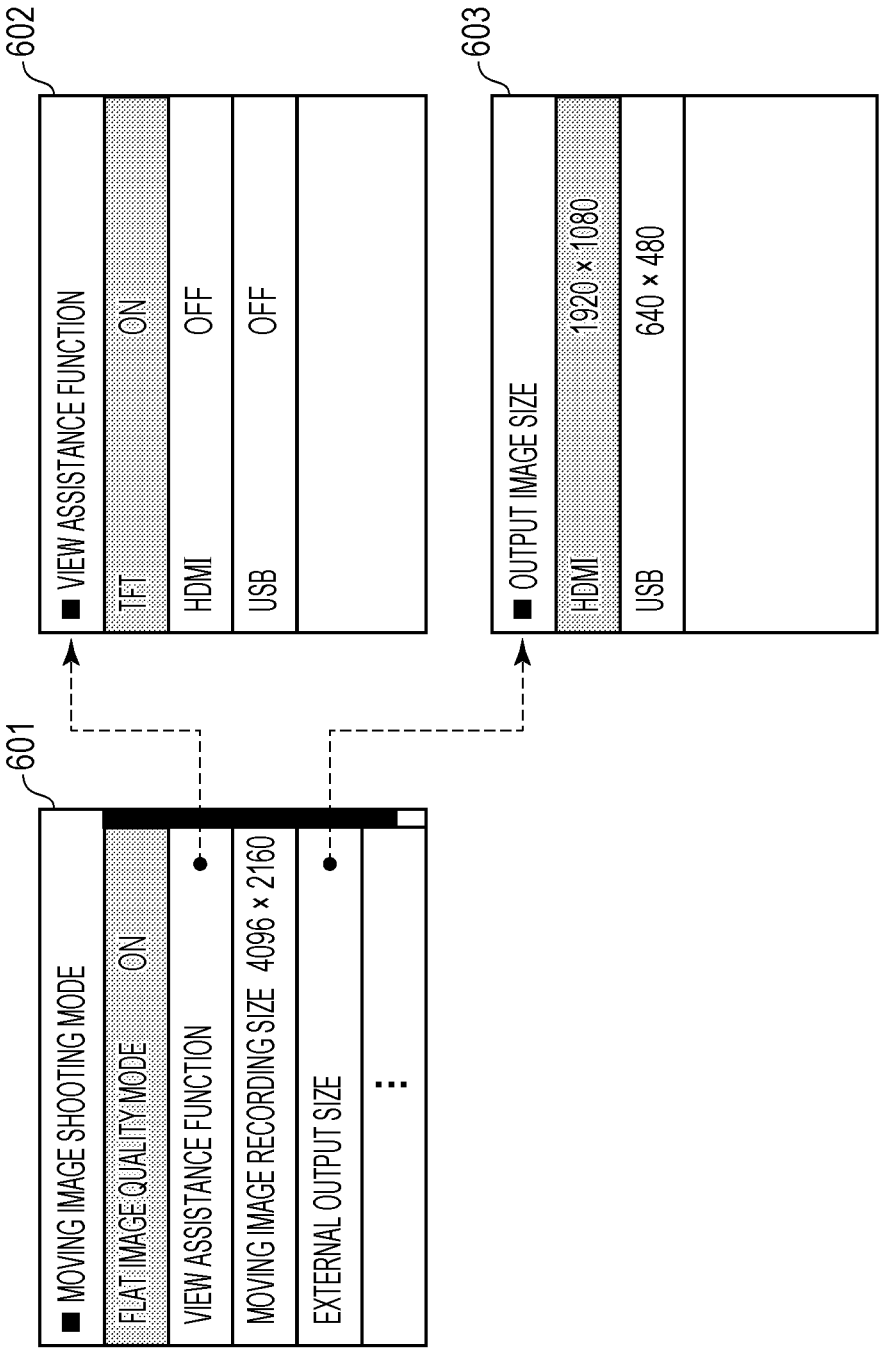
601
■ MOVING IMAGE SHOOTING MODE
FLAT IMAGE QUALITY MODE ON
VIEW ASSISTANCE FUNCTION
MOVING IMAGE RECORDING SIZE 4096 × 2160
EXTERNAL OUTPUT SIZE
602
■ VIEW ASSISTANCE FUNCTION
TFT ON
HDMI OFF
USB OFF
603
■ OUTPUT IMAGE SIZE
HDMI 1920 × 1080
USB 640 × 480

FIG. 7

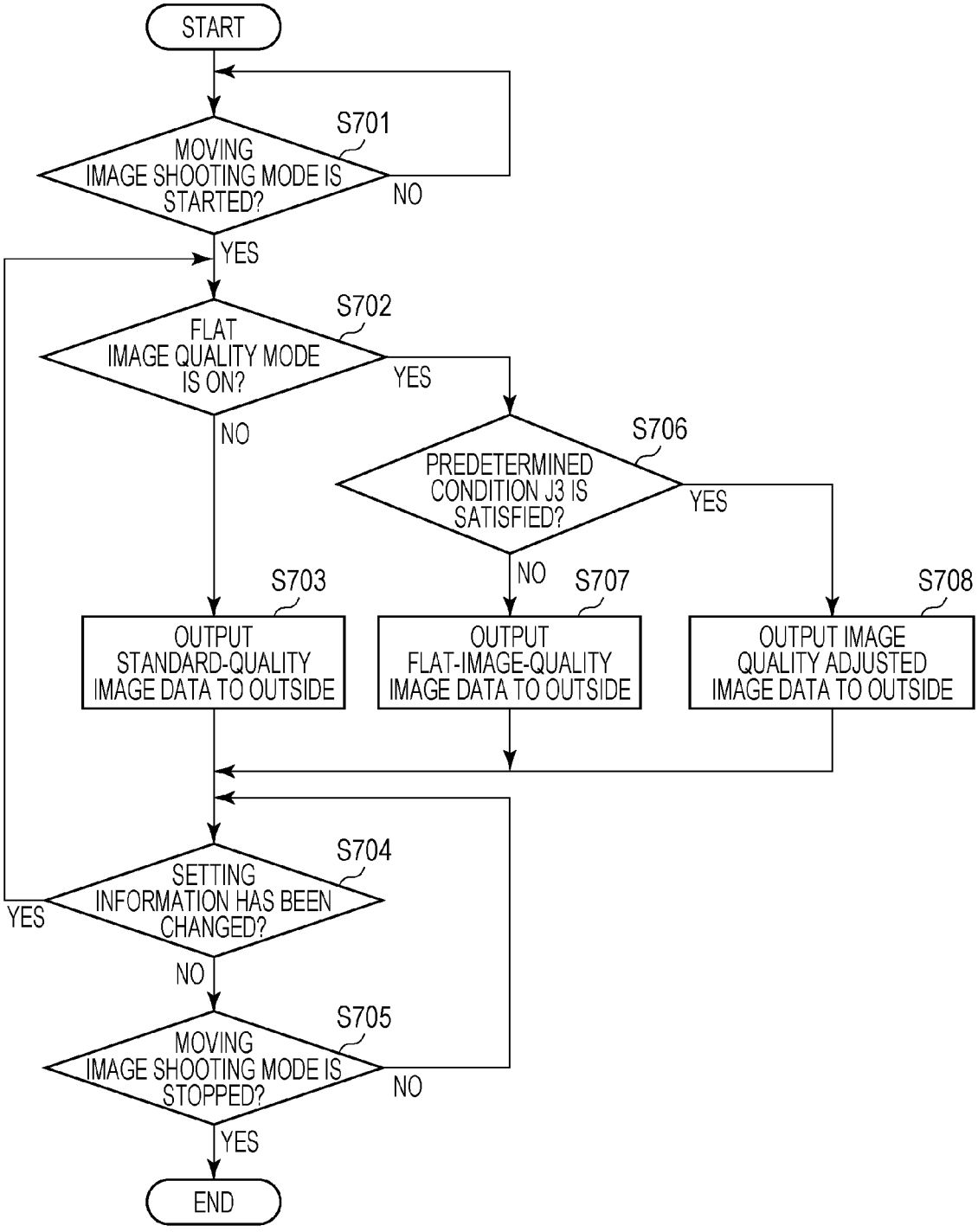
START
S701
MOVING IMAGE SHOOTING MODE IS STARTED?
NO
YES
S702
FLAT IMAGE QUALITY MODE IS ON?
YES
NO
S706
PREDETERMINED CONDITION J3 IS SATISFIED?
YES
NO
S703
OUTPUT STANDARD-QUALITY IMAGE DATA TO OUTSIDE
S707
OUTPUT FLAT-IMAGE-QUALITY IMAGE DATA TO OUTSIDE
S708
OUTPUT IMAGE QUALITY ADJUSTED IMAGE DATA TO OUTSIDE
S704
SETTING INFORMATION HAS BEEN CHANGED?
YES
NO
S705
MOVING IMAGE SHOOTING MODE IS STOPPED?
NO
YES
END

IMAGE CAPTURE APPARATUS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a Continuation of International Patent Application No. PCT/JP2013/060313, filed Apr. 4, 2013, which claims the benefit of Japanese Patent Application No. 2012-089689, filed Apr. 10, 2012, both of which are hereby incorporated by reference herein in their entirety.

FIELD OF THE INVENTION

The present invention relates to an image capture apparatus and the like which can generate a plurality of image data having different types of image quality.

DESCRIPTION OF THE RELATED ART

Japanese Patent Laid-Open No. 2007-151189 describes an image capture apparatus which has a small display device and which can generate a plurality of image data having different types of image quality.

Currently, regarding an image capture apparatus for business use, there is a demand for generating moving image data whose image quality is suitable for various types of image processing (post processing) performed in a video editing apparatus. One of methods which satisfy such a demand is a method in which image data having a wide dynamic range and having a flat image quality with subdued contrast and sharpness is generated and in which moving image data is generated from the image data. Hereinafter, image data having a wide dynamic range and having a flat image quality with subdued contrast and sharpness is called "flat-image-quality image data".

Flat-image-quality image data is suitable for various types of image processing (post processing) performed in a video editing apparatus, but is viewed as having a flat image quality with subdued contrast and sharpness, and therefore has a problem in that it is not suitable for viewing. Such a problem also arises if flat-image-quality image data is viewed on either of a display device of an image capture apparatus and a display device of an external apparatus.

In addition, a system, in which flat-image-quality image data generated in an image capture apparatus is displayed on a display device of the image capture apparatus, has a problem in that it is difficult to predict how an image quality of the image data is going to change after the image data is applied to a predetermined post processing. Such a problem also arises in a system in which images corresponding to flat-image-quality image data are displayed on a display device of an external apparatus during generation of the flat-image-quality image data in an image capture apparatus.

A system, in which only image data which has not been applied to a predetermined post processing is displayed on a display device of an image capture apparatus or an external apparatus, has a problem in that image data which has been applied to the predetermined post processing cannot be viewed in a moving image shooting mode. Such a problem arises if an image capture apparatus generates flat-image-quality image data in the moving image shooting mode.

A system, in which only image data which has been applied to a predetermined post processing is displayed on a display device of an image capture apparatus or an external apparatus, has a problem in that image data which has not been applied to the predetermined post processing cannot be viewed in a moving image shooting mode. Such a problem arises if an image capture apparatus generates flat-image-quality image data in the moving image shooting mode.

SUMMARY OF THE INVENTION

According to one aspect of the present invention, instead of image data whose image quality is a flat image quality suitable for a predetermined post processing, an image capture apparatus can display image data, whose image quality is obtained by applying the predetermined post processing, on a display device of an external apparatus.

According to one aspect of the present invention, instead of image data whose image quality is a flat image quality suitable for a predetermined post processing, an image capture apparatus can output image data, whose image quality is obtained by applying the predetermined post processing, from the image capture apparatus to the outside.

According to one aspect of the present invention, an image capture apparatus can display, on at least one of a display device of the image capture apparatus and a display device of an external apparatus, image data whose image quality is obtained by applying a predetermined post processing.

According to one aspect of the present invention, an image capture apparatus can select at least one of external output units as an external output unit for outputting, from the image capture apparatus to the outside, image data whose image quality is obtained by applying a predetermined post processing.

According to one aspect of the present invention, an image capture apparatus includes an image capture unit, an image processing unit, an image quality adjusting unit, and an output unit. The image capture unit generates first image data using an image capture device. The image processing unit generates second image data from the first image data so that an image quality of the second image data corresponds to a flat image quality. The image quality adjusting unit converts the second image data into third image data by adjusting the image quality of the second image data to be a predetermined image quality. The output unit outputs the third image data instead of the second image data to an external apparatus if a predetermined condition is satisfied.

Further features and aspects of the present invention will become apparent from the following description of exemplary embodiments with reference to the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated in and constitute a part of the specification, illustrate exemplary embodiments, features, and aspects of the present invention and, together with the description, serve to explain the principles of the present invention.

FIG. **1** is a block diagram for illustrating components in an image capture apparatus **100** according to a first exemplary embodiment.

FIG. **2** is a flowchart for illustrating a moving image shooting process A**1** performed in the image capture apparatus **100** according to the first exemplary embodiment.

FIG. **3** is a flowchart for illustrating a moving image recording process B**1** performed in the image capture apparatus **100** according to the first exemplary embodiment.

FIG. **4** is a flowchart for illustrating a moving image display process C**1** performed in the image capture apparatus **100** according to the first exemplary embodiment.

FIG. **5** is a flowchart for illustrating a moving image output process D**1** performed in the image capture apparatus **100** according to the first exemplary embodiment.

FIG. **6** is a diagram for illustrating exemplary setting menus in the image capture apparatus **100** according to the first exemplary embodiment.

FIG. **7** is a flowchart for illustrating a moving image output process D**2** performed in the image capture apparatus **100** according to the first exemplary embodiment.

DESCRIPTION OF THE EMBODIMENTS

Exemplary embodiments, features, and aspects of the present invention will be described below referring to the drawings, but they are not limited to the exemplary embodiments described below.

First Exemplary Embodiment

Components in an image capture apparatus **100** according to the first exemplary embodiment will be described with reference to FIG. **1**. FIG. **1** is a block diagram for illustrating components in the image capture apparatus **100** according to the first exemplary embodiment.

The image capture apparatus **100** may be any apparatus as long as it acts as a digital camera. Therefore, the image capture apparatus **100** may be an apparatus acting as a camera-equipped cell phone. Alternatively, the image capture apparatus **100** may be an apparatus acting as a camera-equipped computer.

The image capture apparatus **100** includes an image capture unit **101**, a lens unit **101***a*, a first image processor **102**, a second image processor **103**, an image quality adjustment unit **104**, a recording controller **105**, a display controller **106**, and a display device **107**.

The image capture apparatus **100** further includes an HDMI controller **108**, an HDMI connector **108***a*, a USB controller **109**, a USB connector **109***a*, a CPU **111**, a memory A **110**, a UI unit **112**, a memory B **113**, and an internal bus **114**.

The image capture apparatus **100** further includes a power switch **112***a*, a moving image shooting mode button **112***b*, a start/stop button **112***c*, a menu button **112***d*, a cross button **112***e*, a setting button **112***f*, and an information display button **112***g*.

The image capture unit **101** includes an image capture device for capturing an optical image via the lens unit **101***a* at each of predetermined time T**1** intervals, and an image data generation unit for generating image data having a predetermined format from the optical image captured by the image capture device at each of the predetermined time T**1** intervals. Thus, the image capture unit **101** can generate two or more subsequent image data. Hereinafter, image data generated by the image capture unit **101** is called "RAW image data". Each of the RAW image data generated by the image capture unit **101** is supplied from the image capture unit **101** to each of the first image processor **102** and the second image processor **103**. The image size (or horizontal and vertical resolutions) of the RAW image data supplied from the image capture unit **101** to each of the first image processor **102** and the second image processor **103** is, for example, equal to or more than "4096×2160". The predetermined time T**1** may be either of 1/24 second, 1/25 second, 1/30 second, 1/50 second, 1/60 second, 1/120 second, etc. The lens unit **101***a* may be removable from the image capture unit **101**.

The first image processor **102** can perform various types of image processing including development. The first image processor **102** processes each of the RAW image data supplied from the image capture unit **101** by using image processing parameter information GP**1**. The image processing parameter information GP**1** includes various parameters which can be set by a user. For example, the image processing parameter information GP**1** includes parameters for white balance, color interpolation, color correction, gamma conversion, edge enhancement, resolution, and the like. The image processing parameter information GP**1** is initialized so that image data having standard image quality is generated. Hereinafter, image data, which is generated by the first image processor **102** processing the RAW image data by using the image processing parameter information GP**1**, is called "standard-quality image data". The standard-quality image data is image data processed so that the image data is viewed as, for example, an image based on ITU-R BT.709.

The standard-quality image data generated by the first image processor **102** is supplied from the first image processor **102** to each of the recording controller **105**, the display controller **106**, the HDMI controller **108**, and the USB controller **109**.

The image size (or horizontal and vertical resolutions) of the standard-quality image data supplied from the first image processor **102** to the recording controller **105** is, for example, either of "4096×2160", "1920×1080", and "1280×720".

The image size (or horizontal and vertical resolutions) of the standard-quality image data supplied from the first image processor **102** to the display controller **106** is, for example, "720×480".

The image size (or horizontal and vertical resolutions) of the standard-quality image data supplied from the first image processor **102** to the HDMI controller **108** is, for example, either of "1920×1080", "1280×720", and "640×480".

The image size (or horizontal and vertical resolutions) of the standard-quality image data supplied from the first image processor **102** to the USB controller **109** is, for example, either of "1920×1080", "1280×720", and "640×480".

The second image processor **103** can perform various types of image processing including development. The second image processor **103** processes each of the RAW image data supplied from the image capture unit **101** by using image processing parameter information GP**2** so as to convert each RAW image data into flat-image-quality image data. The image processing parameter information GP**2** includes various parameters used to generate the flat-image-quality image data. For example, the image processing parameter information GP**2** includes parameters for white balance, color interpolation, color correction, gamma conversion, edge enhancement, resolution, and the like. As described above, the flat-image-quality image data has a wide dynamic range and has an image quality with subdued contrast and sharpness. The flat-image-quality image data is suitable for various types of image processing (post processing) performed in a video editing apparatus as described above.

The flat-image-quality image data generated by the second image processor **103** is supplied from the second image processor **103** to each of the image quality adjustment unit **104**, the recording controller **105**, the display controller **106**, the HDMI controller **108**, and the USB controller **109**. The first image processor **102** and the second image processor **103** may be formed as two different image processors, or may be formed as a single image processor.

The image size (or horizontal and vertical resolutions) of the flat-image-quality image data supplied from the second image processor **103** to the recording controller **105** is, for example, either of "4096×2160", "1920×1080", and "1280×720".

The image size (or horizontal and vertical resolutions) of the flat-image-quality image data supplied from the second

image processor **103** to the image quality adjustment unit **104** is, for example, either of "1920×1080", "1280×720", and "640×480".

The image size (or horizontal and vertical resolutions) of the flat-image-quality image data supplied from the second image processor **103** to the display controller **106** is, for example, "720×480".

The image size (or horizontal and vertical resolutions) of the flat-image-quality image data supplied from the second image processor **103** to the HDMI controller **108** is, for example, either of "1920×1080", "1280×720", and "640×480".

The image size (or horizontal and vertical resolutions) of the flat-image-quality image data supplied from the second image processor **103** to the USB controller **109** is, for example, either of "1920×1080", "1280×720", and "640×480".

The image quality adjustment unit **104** can adjust the image quality of each image data supplied from the second image processor **103** so that the image quality of each image data corresponds to a predetermined image quality. The predetermined image quality is image quality obtained after a predetermined post processing is applied to the flat-image-quality image data. For example, if the predetermined post processing is an image processing for generating an image having a vivid image quality, the predetermined image quality is the vivid image quality. For example, the predetermined image quality may be determined so that the predetermined image quality corresponds to the image quality of image data generated by the first image processor **102**. Hereinafter, image data, which is obtained by applying adjustment performed by the image quality adjustment unit **104** so that an image quality of the image data corresponds to the predetermined image quality, is called "image-quality-adjusted image data". In the first exemplary embodiment, description will be made taking, as an example, a case in which the image-quality-adjusted image data is image data adjusted so that the image data is viewed as an image based on ITU-R BT.709.

The predetermined post processing may be selected from multiple types of post processing by a user. In this case, the CPU **111** transmits information indicating image quality corresponding to the post processing selected by the user to the image quality adjustment unit **104**. The image quality adjustment unit **104**, which receives this information, adjusts the image quality of each image data supplied from the second image processor **103** so that the image quality of each image data corresponds to the image quality corresponding to the post processing selected by the user.

The image-quality-adjusted image data generated by the image quality adjustment unit **104** is supplied from the image quality adjustment unit **104** to each of the display controller **106**, the HDMI controller **108**, and the USB controller **109**.

The image size (or horizontal and vertical resolutions) of the image-quality-adjusted image data supplied from the image quality adjustment unit **104** to the HDMI controller **108** is, for example, either of "1920×1080", "1280×720", and "640×480".

The image size (or horizontal and vertical resolutions) of the image-quality-adjusted image data supplied from the image quality adjustment unit **104** to the USB controller **109** is, for example, either of "1920×1080", "1280×720", and "640×480".

A storage device **105***a* is a storage device having a flash memory, a memory card, a hard disk drive, or the like, and acts as a recording medium. The storage device **105***a* may be a storage device removable from the image capture apparatus **100**, or may be a storage device embedded in the image capture apparatus **100**.

The recording controller **105** has a first function of recording image data, which are supplied from the first image processor **102**, in the storage device **105***a* as moving image data. The first function enables the recording controller **105** to record the standard-quality image data as moving image data in the storage device **105***a*.

The recording controller **105** also has a second function of recording image data, which are supplied from the second image processor **103**, in the storage device **105***a* as moving image data. The second function enables the recording controller **105** to record the flat-image-quality image data as moving image data in the storage device **105***a*.

The recording controller **105** has a third function of reading out moving image data specified by a user from the storage device **105***a*. Each image data included in the moving image data that is read out from the storage device **105***a* is supplied from the recording controller **105** to the display controller **106**, and is displayed on the display device **107**.

The display controller **106** has a first function of displaying images, which correspond to image data supplied from the first image processor **102**, on the display device **107**. The first function enables the display controller **106** to display an image corresponding to the standard-quality image data on the display device **107**.

The display controller **106** also has a second function of displaying images, which correspond to image data supplied from the second image processor **103**, on the display device **107**. The second function enables the display controller **106** to display an image corresponding to the flat-image-quality image data on the display device **107**.

The display controller **106** has a third function of displaying images, which correspond to image data supplied from the image quality adjustment unit **104**, on the display device **107**. The third function enables the display controller **106** to display an image corresponding to the image-quality-adjusted image data on the display device **107**.

The display device **107** has, for example, a liquid crystal display device. The display device **107** may be removable from the image capture apparatus **100**.

The HDMI controller **108** acts as an external output unit based on the HDMI (High-Definition Multimedia Interface) standard. The HDMI controller **108** has at least one HDMI connector **108***a*.

The HDMI controller **108** has a first function of outputting image data, which are supplied from the first image processor **102**, to an external apparatus EX**1** as moving image data. The first function enables the HDMI controller **108** to transmit the standard-quality image data to the external apparatus EX**1**.

The HDMI controller **108** also has a second function of outputting image data, which are supplied from the second image processor **103**, to the external apparatus EX**1** as moving image data. The second function enables the HDMI controller **108** to transmit the flat-image-quality image data to the external apparatus EX**1**.

The HDMI controller **108** also has a third function of outputting image data, which are supplied from the image quality adjustment unit **104**, to the external apparatus EX**1** as moving image data. The third function enables the HDMI controller **108** to transmit the image-quality-adjusted image data to the external apparatus EX**1**.

The USB controller **109** acts as an external output unit based on the USB (Universal Serial Bus) standard. As the USB standard, USB 2.0, USB 3.0, and the like are known. The USB controller **109** has at least one USB connector **109***a*.

The USB controller **109** has a first function of outputting image data, which are supplied from the first image processor **102**, to an external apparatus EX**2** as moving image data. The first function enables the USB controller **109** to transmit the standard-quality image data to the external apparatus EX**2**.

The USB controller **109** also has a second function of outputting image data, which are supplied from the second image processor **103**, to the external apparatus EX**2** as moving image data. The second function enables the USB controller **109** to transmit the flat-image-quality image data to the external apparatus EX**2**.

The USB controller **109** has a third function of outputting image data, which are supplied from the image quality adjustment unit **104**, to the external apparatus EX**2** as moving image data. The third function enables the USB controller **109** to transmit the image-quality-adjusted image data to the external apparatus EX**2**.

The memory A **110** stores programs executed by the CPU **111**. The programs stored in the memory A **110** include programs Pg**1** to Pg**5** described below.

The CPU (Central Processing Unit) **111** has a processor for controlling the image capture apparatus **100** by using the programs stored in the memory A **110**. The CPU **111** controls the image capture unit **101**, the lens unit **101***a*, the first image processor **102**, the second image processor **103**, the image quality adjustment unit **104**, the recording controller **105**, the display controller **106**, and the display device **107**. The CPU **111** also controls the HDMI controller **108**, the HDMI connector **108***a*, the USB controller **109**, the USB connector **109***a*, the memory A **110**, the UI unit **112**, and the memory B **113**.

The UI (user interface) unit **112** acts as an instruction input unit for inputting various instructions from a user to the CPU **111**. The UI unit **112** has switches, buttons, a touch panel, and the like for receiving various instructions from a user. The UI unit **112** includes the power switch **112***a*, the moving image shooting mode button **112***b*, the start/stop button **112***c*, the menu button **112***d*, the cross button **112***e*, the setting button **112***f*, and the information display button **112***g*.

The power switch **112***a* is a switch for controlling power supply of the image capture apparatus **100**. If the power switch **112***a* is turned ON, the CPU **111** causes the image capture apparatus **100** to enter a power-on mode. If the power switch **112***a* is turned OFF, the CPU **111** causes the image capture apparatus **100** to enter a power-off mode or a power saving mode.

The moving image shooting mode button **112***b* is a button for instructing the CPU **111** to start or stop the moving image shooting mode. The moving image shooting mode is one of the operation modes in the image capture apparatus **100**. The start/stop button **112***c* is a button for instructing the CPU **111** to start or stop moving image recording.

The menu button **112***d* is a button for instructing the CPU **111** whether or not a setting menu **601** illustrated in FIG. **6** is to be displayed on the display device **107**. If the menu button **112***d* is turned ON, the CPU **111** causes the setting menu **601** illustrated in FIG. **6** to be displayed on the display device **107**. If the menu button **112***d* is turned OFF, the CPU **111** causes the setting menu **601** and setting menus **602** and **603** illustrated in FIG. **6** not to be displayed on the display device **107**.

The cross button **112***e* is a button for operating the setting menus **601** to **603** illustrated in FIG. **6**. The setting button **112***f* is a button for setting an item selected by a user to the image capture apparatus **100**. The information display button **112***g* is a button for setting a shooting information adding function to ON or OFF.

The memory B **113** is a memory for storing various types of information. Information indicating whether a flat image quality mode is ON or OFF is stored in the memory B **113**. The image processing parameter information GP**1** and the image processing parameter information GP**2** are stored in the memory B **113**. Information about the predetermined post processing is stored in the memory B **113**. Initial settings about the image capture apparatus **100** are stored in the memory B **113**. The setting menus **601** to **603** and other setting menus displayed on the display device **107** are stored in the memory B **113**. Predetermined conditions J**1**, J**2**, and J**3** described below are stored in the memory B **113**. Setting information about the shooting information adding function is stored in the memory B **113**.

Exemplary setting menus in the image capture apparatus **100** will be described with reference to FIG. **6**.

FIG. **6** is a diagram for illustrating exemplary setting menus in the image capture apparatus **100** according to the first exemplary embodiment. The setting menus **601** to **603** illustrated in FIG. **6** are stored in the memory B **113**.

In FIG. **6**, the setting menu **601** is a setting menu for changing setting information about the moving image shooting mode.

If the right side of the cross button **112***e* is pressed when "flat image quality mode" in the setting menu **601** is selected, "ON" or "OFF" is displayed. If the setting button **112***f* is pressed when "ON" is displayed, the CPU **111** sets the flat image quality mode to ON. If the setting button **112***f* is pressed when "OFF" is displayed, the CPU **111** sets the flat image quality mode to OFF. In the initial settings, setting information about the flat image quality mode indicates, for example, "OFF". The setting information about the flat image quality mode is stored in the memory B **113**.

If the setting button **112***f* is pressed when "view assistance function" in the setting menu **601** is selected, the CPU **111** causes the setting menu **602** to be displayed on the display device **107**. This enables a user to change setting information about view assistance functions.

If the right side of the cross button **112***e* is pressed when "moving image recording size" in the setting menu **601** is selected, either of, for example, "4096×2160", "1920×1080", and "1280×720" is displayed. In the first exemplary embodiment, image size (or horizontal and vertical resolutions) of image data, which is recorded as moving image data by the recording controller **105** in the storage device **105***a*, is called a "moving image recording size". If the setting button **112***f* is pressed when "4096×2160" is displayed, the CPU **111** sets setting information about the moving image recording size to "4096×2160". Through a similar operation, the CPU **111** can set the setting information about the moving image recording size to "1920×1080" or "1280×720". Thus, a user can select "4096×2160", "1920×1080", or "1280×720" as the moving image recording size so as to set it to the image capture apparatus **100**. In the initial settings, setting information about the moving image recording size indicates, for example, "4096×2160". The setting information about the moving image recording size is stored in the memory B **113**.

If the setting button **112***f* is pressed when "external output size" in the setting menu **601** is selected, the CPU **111** causes the setting menu **603** to be displayed on the display device **107**. This causes a user to change setting information about external output sizes. In the first exemplary embodiment, image size (or horizontal and vertical resolutions) of image data, which is output from the HDMI controller **108** or the USB controller **109** to the external apparatus EX**1** or EX**2**, is called an "external output size".

In FIG. **6**, the setting menu **602** is a setting menu for changing setting information about view assistance functions.

In the setting menu **602**, "TFT" corresponds to the display device **107**. If the right side of the cross button **112***e* is pressed when "TFT" is selected, "ON" or "OFF" is displayed. If the setting button **112***f* is pressed when "ON" is displayed, the CPU **111** sets setting information about a view assistance function of the display device **107** to ON. If the setting button **112***f* is pressed with "OFF" being displayed, the CPU **111** sets the setting information about the view assistance function of the display device **107** to OFF. In the initial settings, the setting information about the view assistance function of the display device **107** indicates, for example, "ON". The setting information about the view assistance function of the display device **107** is stored in the memory B **113**.

In the setting menu **602**, "HDMI" corresponds to the HDMI controller **108**. If the right side of the cross button **112***e* is pressed when "HDMI" is selected, "ON" or "OFF" is displayed. If the setting button **112***f* is pressed when "ON" is displayed, the CPU **111** sets setting information about a view assistance function of the HDMI controller **108** to ON. If the setting button **112***f* is pressed with "OFF" being displayed, the CPU **111** sets the setting information about the view assistance function of the HDMI controller **108** to OFF. In the initial settings, the setting information about the view assistance function of the HDMI controller **108** indicates, for example, "OFF". The setting information about the view assistance function of the HDMI controller **108** is stored in the memory B **113**.

In the setting menu **602**, "USB" corresponds to the USB controller **109**. If the right side of the cross button **112***e* is pressed when "USB" is selected, "ON" or "OFF" is displayed. If the setting button **112***f* is pressed when "ON" is displayed, the CPU **111** sets setting information about a view assistance function of the USB controller **109** to ON. If the setting button **112***f* is pressed with "OFF" being displayed, the CPU **111** sets the setting information about the view assistance function of the USB controller **109** to OFF. In the initial settings, the setting information about the view assistance function of the USB controller **109** indicates, for example, "OFF". The setting information about the view assistance function of the USB controller **109** is stored in the memory B **113**.

In FIG. **6**, the setting menu **603** is a setting menu for changing setting information about external output sizes.

In the setting menu **603**, "HDMI" corresponds to the HDMI controller **108**. If the right side of the cross button **112***e* is pressed when "HDMI" is selected, either of, for example, "1920×1080", "1280×720", and "640×480" is displayed. If the setting button **112***f* is pressed when "1920×1080" is displayed, the CPU **111** sets setting information about the external output size of the HDMI controller **108** to "1920×1080". Through a similar operation, the CPU **111** can set the setting information about the external output size of the HDMI controller **108** to "1280×720" or "640×480". Thus, a user can select "1920×1080", "1280×720", or "640×480" as the external output size of the HDMI controller **108** so as to set it to the image capture apparatus **100**. In the initial settings, the setting information about the external output size of the HDMI controller **108** indicates, for example, "1920×1080". The setting information about the external output size of the HDMI controller **108** is stored in the memory B **113**.

In the setting menu **603**, "USB" corresponds to the USB controller **109**. If the right side of the cross button **112***e* is pressed when "USB" is selected, either of, for example, "1920×1080", "1280×720", and "640×480" is displayed. If the setting button **112***f* is pressed when "1920×1080" is displayed, the CPU **111** sets setting information about the external output size of the USB controller **109** to "1920×1080". Through a similar operation, the CPU **111** can set the setting information about the external output size of the USB controller **109** to "1280×720" or "640×480". Thus, a user can select "1920×1080", "1280×720", or "640×480" as the external output size of the USB controller **109** so as to set it to the image capture apparatus **100**. In the initial settings, the setting information about the external output size of the USB controller **109** indicates, for example, "640×480". The setting information about the external output size of the USB controller **109** is stored in the memory B **113**.

A moving image shooting process A**1** performed in the image capture apparatus **100** according to the first exemplary embodiment will be described with reference to FIG. **2**. FIG. **2** is a flowchart for illustrating the moving image shooting process A**1** performed in the image capture apparatus **100** according to the first exemplary embodiment. The CPU **111** controls the moving image shooting process A**1** by executing the program Pg**1** stored in the memory A **110**.

In step S**201**, the CPU **111** determines whether or not an instruction to start the moving image shooting mode is received.

For example, if the power switch **112***a* is ON and the moving image shooting mode button **112***b* has been turned ON, the CPU **111** determines that the instruction to start the moving image shooting mode is received. If the instruction to start the moving image shooting mode is received, the CPU **111** proceeds from step S**201** to step S**202** (YES in step S**201**).

For example, if the power switch **112***a* is ON but the moving image shooting mode button **112***b* has not been turned ON, the CPU **111** determines that the instruction to start the moving image shooting mode is not received. If the instruction to start the moving image shooting mode is not received, the CPU **111** repeats step S**201** (NO in step S**201**).

In step S**202**, the CPU **111** transmits a start capture command to the image capture unit **101**. The image capture unit **101**, which receives the start capture command, captures an optical image by using the lens unit **101***a* and the image capture device at each of the predetermined time T**1** intervals. The image capture unit **101** generates RAW image data from the optical image captured by the image capture device at each of the predetermined time T**1** intervals. Thus, the image capture unit **101** can generate two or more subsequent RAW image data. Each of the RAW image data generated by the image capture unit **101** is supplied from the image capture unit **101** to each of the first image processor **102** and the second image processor **103**.

If the start capture command is transmitted to the image capture unit **101**, the CPU **111** proceeds from step S**202** to step S**203**.

In step S**203**, the CPU **111** determines whether the flat image quality mode is ON or OFF.

If the flat image quality mode is ON, the CPU **111** proceeds from step S**203** to step S**207** (YES in step S**203**).

If the flat image quality mode is OFF, the CPU **111** proceeds from step S**203** to step S**204** (NO in step S**203**).

In step S**204**, the CPU **111** transmits a first image processing command to the first image processor **102**. The first image processor **102**, which receives the first image processing command, processes each RAW image data supplied from the image capture unit **101**, by using the image processing parameter information GP**1**. Thus, the first image processor **102** can convert each RAW image data supplied from the image capture unit **101** into standard-quality image data.

In step S204, the standard-quality image data generated by the first image processor 102 are supplied to each of the recording controller 105, the display controller 106, the HDMI controller 108, and the USB controller 109.

After the CPU 111 transmits the first image processing command to the first image processor 102, the CPU 111 proceeds from step S204 to step S205.

In step S205, the CPU 111 determines whether or not the setting information about the flat image quality mode has been changed during the moving image shooting mode.

If the setting information about the flat image quality mode has been changed during the moving image shooting mode, the CPU 111 returns back from step S205 to step S203 (YES in step S205).

If the setting information about the flat image quality mode has not been changed during the moving image shooting mode, the CPU 111 proceeds from step S205 to step S206 (NO in step S205).

In step S206, the CPU 111 determines whether or not an instruction to stop the moving image shooting mode is received.

For example, if either one of the power switch 112*a* and the moving image shooting mode button 112*b* is turned OFF, the CPU 111 determines that the instruction to stop the moving image shooting mode is received. If the instruction to stop the moving image shooting mode is received, the CPU 111 ends the moving image shooting process A1 (YES in step S206).

For example, if both of the power switch 112*a* and the moving image shooting mode button 112*b* are ON, the CPU 111 determines that the instruction to stop the moving image shooting mode is not received. If the instruction to stop the moving image shooting mode is not received, the CPU 111 returns back from step S206 to step S205 (NO in step S206).

In step S207, the CPU 111 transmits a second image processing command to the second image processor 103. The second image processor 103, which receives the second image processing command, processes each RAW image data supplied from the image capture unit 101, by using the image processing parameter information GP2. Thus, the second image processor 103 can convert each RAW image data supplied from the image capture unit 101 into flat-image-quality image data.

In step S207, the flat-image-quality image data generated by the second image processor 103 are supplied to each of the image quality adjustment unit 104, the recording controller 105, the display controller 106, the HDMI controller 108, and the USB controller 109.

After the CPU 111 transmits the second image processing command to the second image processor 103, the CPU 111 proceeds from step S207 to step S208.

In step S208, the CPU 111 transmits an image quality adjustment command to the image quality adjustment unit 104. The image quality adjustment unit 104, which receives the image quality adjustment command, adjusts the image quality of each image data supplied from the second image processor 103 so that the image quality of each image data corresponds to the predetermined image quality. Thus, the image quality adjustment unit 104 can convert each image data supplied from the second image processor 103 into image-quality-adjusted image data.

In step S208, the image-quality-adjusted image data generated by the image quality adjustment unit 104 are supplied to each of the display controller 106, the HDMI controller 108, and the USB controller 109.

After the CPU 111 transmits the image quality adjustment command to the image quality adjustment unit 104, the CPU 111 proceeds from step S208 to step S205.

Thus, if the flat image quality mode is OFF, the image capture apparatus 100 can generate the standard-quality image data at each predetermined time T1 interval. If the flat image quality mode is ON, the image capture apparatus 100 can generate the flat-image-quality image data at each predetermined time T1 interval. If the flat image quality mode is ON, the image capture apparatus 100 can generate image data, whose image quality is obtained by applying the predetermined post processing, at each predetermined time T1 interval.

A moving image recording process B1 performed in the image capture apparatus 100 according to the first exemplary embodiment will be described with reference to FIG. 3. FIG. 3 is a flowchart for illustrating the moving image recording process B1 performed in the image capture apparatus 100 according to the first exemplary embodiment. The CPU 111 controls the moving image recording process B1 by executing the program Pg2 stored in the memory A 110.

In step S301, the CPU 111 determines whether or not an instruction to start recording of moving image is received.

For example, if the power switch 112*a* and the moving image shooting mode button 112*b* are ON and the start/stop button 112*c* has been turned ON, the CPU 111 determines that the instruction to start recording of moving image is received. If the instruction to start recording of moving image is received, the CPU 111 proceeds from step S301 to step S302 (YES in step S301).

For example, if the power switch 112*a* and the moving image shooting mode button 112*b* are ON but the start/stop button 112*c* has not been turned ON, the CPU 111 determines that the instruction to start recording of moving image is not received. If the instruction to start recording of moving image is not received, the CPU 111 repeats step S301 (NO in step S301).

In step S302, the CPU 111 determines whether the flat image quality mode is ON or OFF.

If the flat image quality mode is ON, the CPU 111 proceeds from step S302 to step S306 (YES in step S302). If the flat image quality mode is ON, the flat-image-quality image data are generated in the image capture apparatus 100 (see step S207).

If the flat image quality mode is OFF, the CPU 111 proceeds from step S302 to step S303 (NO in step S302). If the flat image quality mode is OFF, the standard-quality image data are generated in the image capture apparatus 100 (see step S204).

In step S303, the CPU 111 transmits a first start recording command to the recording controller 105. The recording controller 105, which receives the first start recording command, starts recording each image data supplied from the first image processor 102 to the recording controller 105 in the storage device 105*a* as moving image data. Thus, the standard-quality image data are recorded in the storage device 105*a* as moving image data. The image size (or horizontal and vertical resolutions) of the standard-quality image data recorded in the storage device 105*a* depends on the setting information about the moving image recording size.

If the first start recording command is transmitted to the recording controller 105, the CPU 111 proceeds from step S303 to step S304.

In step S304, the CPU 111 determines whether or not an instruction to stop recording of moving image is received.

For example, if either one of the power switch 112*a*, the moving image shooting mode button 112*b*, and the start/stop button 112*c* is turned OFF, the CPU 111 determines that the instruction to stop recording of moving image is received. If

the instruction to stop recording of moving image is received, the CPU **111** proceeds from step S**304** to step S**305** (YES in step S**304**).

For example, if all of the power switch **112***a*, the moving image shooting mode button **112***b*, and the start/stop button **112***c* are ON, the CPU **111** determines that the instruction to stop recording of moving image is not received. If the instruction to stop recording of moving image is not received, the CPU **111** repeats step S**304** (NO in step S**304**).

In step S**305**, the CPU **111** transmits a stop recording command to the recording controller **105**. The recording controller **105**, which receives the stop recording command, stops recording each image data supplied from the first image processor **102** to the recording controller **105** in the storage device **105***a*. Thus, recording of the standard-quality image data in the storage device **105***a* is stopped. If the recording controller **105** stops recording the standard-quality image data in the storage device **105***a*, the CPU **111** ends the moving image recording process B**1**.

In step S**306**, the CPU **111** transmits a second start recording command to the recording controller **105**. The recording controller **105**, which receives the second start recording command, starts recording each image data supplied from the second image processor **103** to the recording controller **105** in the storage device **105***a* as moving image data. Thus, the flat-image-quality image data are recorded in the storage device **105***a* as moving image data. The image size (or horizontal and vertical resolutions) of the flat-image-quality image data recorded in the storage device **105***a* depends on the setting information about the moving image recording size.

If the CPU **111** transmits the second start recording command to the recording controller **105**, the CPU **111** proceeds from step S**306** to step S**307**.

In step S**307**, the CPU **111** determines whether or not an instruction to stop recording of moving image is received.

For example, if either one of the power switch **112***a*, the moving image shooting mode button **112***b*, and the start/stop button **112***c* is turned OFF, the CPU **111** determines that the instruction to stop recording of moving image is received. If the instruction to stop recording of moving image is received, the CPU **111** proceeds from step S**307** to step S**308** (YES in step S**307**).

For example, if all of the power switch **112***a*, the moving image shooting mode button **112***b*, and the start/stop button **112***c* are ON, the CPU **111** determines that the instruction to stop recording of moving image is not received. If the instruction to stop recording of moving image is not received, the CPU **111** repeats step S**307** (NO in step S**307**).

In step S**308**, the CPU **111** transmits a stop recording command to the recording controller **105**. The recording controller **105**, which receives the stop recording command, stops recording each image data supplied from the second image processor **103** to the recording controller **105** in the storage device **105***a*. Thus, recording of the flat-image-quality image data in the storage device **105***a* is stopped. If the recording controller **105** stops recording the flat-image-quality image data in the storage device **105***a*, the CPU **111** ends the moving image recording process B**1**.

Thus, if the flat image quality mode is OFF, the image capture apparatus **100** can record the standard-quality image data in the storage device **105***a* as moving image data.

If the flat image quality mode is ON, the image capture apparatus **100** can record the flat-image-quality image data in the storage device **105***a* as moving image data.

If the flat image quality mode is ON, the image capture apparatus **100** can record the flat-image-quality image data in the storage device **105***a* as moving image data regardless of whether or not the view assistance function is ON.

A moving image display process C**1** performed in the image capture apparatus **100** according to the first exemplary embodiment will be described with reference to FIG. **4**. FIG. **4** is a flowchart for illustrating the moving image display process C**1** performed in the image capture apparatus **100** according to the first exemplary embodiment. The CPU **111** controls the moving image display process C**1** by executing the program Pg**3** stored in the memory A **110**.

In step S**401**, the CPU **111** determines whether or not an instruction to start the moving image shooting mode is received.

For example, if the power switch **112***a* is ON and the moving image shooting mode button **112***b* has been turned ON, the CPU **111** determines that the instruction to start the moving image shooting mode is received. If the instruction to start the moving image shooting mode is received, the CPU **111** proceeds from step S**401** to step S**402** (YES in step S**401**).

For example, if the power switch **112***a* is ON but the moving image shooting mode button **112***b* has not been turned ON, the CPU **111** determines that the instruction to start the moving image shooting mode is not received. If the instruction to start the moving image shooting mode is not received, the CPU **111** repeats step S**401** (NO in step S**401**).

In step S**402**, the CPU **111** determines whether the flat image quality mode is ON or OFF.

If the flat image quality mode is ON, the CPU **111** proceeds from step S**402** to step S**406** (YES in step S**402**). If the flat image quality mode is ON, the flat-image-quality image data are generated in the image capture apparatus **100** (see step S**207**). If the flat image quality mode is ON, the image-quality-adjusted image data are also generated in the image capture apparatus **100** (see step S**208**).

If the flat image quality mode is OFF, the CPU **111** proceeds from step S**402** to step S**403** (NO in step S**402**). If the flat image quality mode is OFF, the standard-quality image data are generated in the image capture apparatus **100** (see step S**204**).

In step S**403**, the CPU **111** transmits a first start display command to the display controller **106**. The display controller **106**, which receives the first start display command, controls the display device **107** so that an image corresponding to the standard-quality image data supplied from the first image processor **102** to the display controller **106** is displayed on the display device **107**. Thus, if the flat image quality mode is OFF, a moving image having standard image quality is displayed on the display device **107**. Therefore, if the flat image quality mode is OFF, output image quality of the display device **107** is the standard image quality.

If the first start display command is transmitted to the display controller **106**, the CPU **111** proceeds from step S**403** to step S**404**.

In step S**404**, the CPU **111** determines whether or not the setting information about the flat image quality mode has been changed during the moving image shooting mode. In step S**404**, the CPU **111** determines whether or not the setting information about the view assistance function of the display device **107** has been changed during the moving image shooting mode.

If the setting information about the flat image quality mode has been changed during the moving image shooting mode, the CPU **111** returns back from step S**404** to step S**402** (YES in step S**404**). If the setting information about the view assistance function of the display device **107** has been changed

during the moving image shooting mode, the CPU **111** also returns back from step S**404** to step S**402** (YES in step S**404**).

If the setting information about the flat image quality mode has not been changed during the moving image shooting mode, the CPU **111** proceeds from step S**404** to step S**405** (NO in step S**404**). If the setting information about the view assistance function of the display device **107** has not been changed during the moving image shooting mode, the CPU **111** also proceeds from step S**404** to step S**405** (NO in step S**404**).

In step S**405**, the CPU **111** determines whether or not an instruction to stop the moving image shooting mode is received.

For example, if either one of the power switch **112***a* and the moving image shooting mode button **112***b* is turned OFF, the CPU **111** determines that the instruction to stop the moving image shooting mode is received. If the instruction to stop the moving image shooting mode is received, the CPU **111** ends the moving image display process C**1** (YES in step S**405**).

For example, if all of the power switch **112***a* and the moving image shooting mode button **112***b* are ON, the CPU **111** determines that the instruction to stop the moving image shooting mode is not received. If the instruction to stop the moving image shooting mode is not received, the CPU **111** returns back from step S**405** to step S**404** (NO in step S**405**).

In step S**406**, the CPU **111** determines whether or not the predetermined condition J**1** is satisfied. The predetermined condition J**1** indicates, for example, that the view assistance function of the display device **107** is ON.

If the view assistance function of the display device **107** is ON, the CPU **111** determines that the predetermined condition J**1** is satisfied. If the predetermined condition J**1** is satisfied, the CPU **111** proceeds from step S**406** to step S**408** (YES in step S**406**).

If the view assistance function of the display device **107** is OFF, the CPU **111** determines that the predetermined condition J**1** is not satisfied. If the predetermined condition J**1** is not satisfied, the CPU **111** proceeds from step S**406** to step S**407** (NO in step S**406**).

In step S**407**, the CPU **111** transmits a second start display command to the display controller **106**. The display controller **106**, which receives the second start display command, controls the display device **107** so that an image corresponding to the flat-image-quality image data supplied from the second image processor **103** to the display controller **106** is displayed on the display device **107**. Thus, in a case where the flat image quality mode is ON but where the view assistance function of the display device **107** is OFF, a moving image having flat image quality is displayed on the display device **107**. Therefore, in a case where the flat image quality mode is ON but where the view assistance function of the display device **107** is OFF, output image quality of the display device **107** is the flat image quality.

If the second start display command is transmitted to the display controller **106**, the CPU **111** proceeds from step S**407** to step S**404**.

In step S**408**, the CPU **111** transmits a third start display command to the display controller **106**. The display controller **106**, which receives the third start display command, controls the display device **107** so that an image corresponding to the image-quality-adjusted image data supplied from the image quality adjustment unit **104** to the display controller **106** are displayed on the display device **107**. Thus, in a case where the flat image quality mode is ON and where the view assistance function of the display device **107** is also ON, the image quality of a moving image displayed on the display device **107** is the image quality obtained by applying the predetermined post processing. Therefore, in a case where the flat image quality mode is ON and where the view assistance function of the display device **107** is also ON, output image quality of the display device **107** is the image quality obtained by applying the predetermined post processing.

If the third start display command is transmitted to the display controller **106**, the CPU **111** proceeds from step S**408** to step S**404**.

Thus, the flat image quality mode is set to ON or OFF, and the view assistance function of the display device **107** is set to ON or OFF, whereby a user can freely change output image quality of the display device **107**. Consequently, in a case where the flat-image-quality image data suitable for the predetermined post processing is generated, image data, whose image quality is obtained by applying the predetermined post processing, can be displayed on the display device **107** instead of the flat-image-quality image data.

A moving image output process D**1** performed in the image capture apparatus **100** according to the first exemplary embodiment will be described with reference to FIG. **5**. FIG. **5** is a flowchart for illustrating the moving image output process D**1** performed in the image capture apparatus **100** according to the first exemplary embodiment. The CPU **111** controls the moving image output process D**1** by executing the program Pg**4** stored in the memory A **110**.

In step S**501**, the CPU **111** determines whether or not an instruction to start the moving image shooting mode is received.

For example, if the power switch **112***a* is ON and the moving image shooting mode button **112***b* has been turned ON, the CPU **111** determines that the instruction to start the moving image shooting mode is received. If the instruction to start the moving image shooting mode is received, the CPU **111** proceeds from step S**501** to step S**502** (YES in step S**501**).

For example, if the power switch **112***a* is ON but the moving image shooting mode button **112***b* has not been turned ON, the CPU **111** determines that the instruction to start the moving image shooting mode is not received. If the instruction to start the moving image shooting mode is not received, the CPU **111** repeats step S**501** (NO in step S**501**).

In step S**502**, the CPU **111** determines whether the flat image quality mode is ON or OFF.

If the flat image quality mode is ON, the CPU **111** proceeds from step S**502** to step S**506** (YES in step S**502**). If the flat image quality mode is ON, the flat-image-quality image data are generated in the image capture apparatus **100** (see step S**207**). If the flat image quality mode is ON, the image-quality-adjusted image data are also generated in the image capture apparatus **100** (see step S**208**).

If the flat image quality mode is OFF, the CPU **111** proceeds from step S**502** to step S**503** (NO in step S**502**). If the flat image quality mode is OFF, the standard-quality image data are generated in the image capture apparatus **100** (see step S**204**).

In step S**503**, the CPU **111** transmits a first start output command to the HDMI controller **108**. The HDMI controller **108**, which receives the first start output command, transmits the standard-quality image data, which is supplied from the first image processor **102** to the HDMI controller **108**, to the external apparatus EX**1** via the HDMI connector **108***a*. If the external apparatus EX**1** acts as an external storage, the standard-quality image data transmitted from the HDMI controller **108** can be recorded on a recording medium of the external apparatus EX**1**. If the external apparatus EX**1** acts as an external display, an image corresponding to the standard-quality image data transmitted from the HDMI controller **108**

can be displayed on a display device of the external apparatus EX1. Thus, if the flat image quality mode is OFF, the standard-quality image data is output from the HDMI controller **108**. Therefore, if the flat image quality mode is OFF, output image quality of the HDMI controller **108** is the standard image quality.

If the first start output command is transmitted to the HDMI controller **108**, the CPU **111** proceeds from step S**503** to step S**504**.

In step S**504**, the CPU **111** determines whether or not the setting information about the flat image quality mode has been changed during the moving image shooting mode. In step S**504**, the CPU **111** determines whether or not the setting information about the view assistance function of the HDMI controller **108** has been changed during the moving image shooting mode.

If the setting information about the flat image quality mode has been changed during the moving image shooting mode, the CPU **111** returns back from step S**504** to step S**502** (YES in step S**504**). If the setting information about the view assistance function of the HDMI controller **108** has been changed during the moving image shooting mode, the CPU **111** also returns back from step S**504** to step S**502** (YES in step S**504**).

If the setting information about the flat image quality mode has not been changed during the moving image shooting mode, the CPU **111** proceeds from step S**504** to step S**505** (NO in step S**504**). If the setting information about the view assistance function of the HDMI controller **108** has not been changed during the moving image shooting mode, the CPU **111** also proceeds from step S**504** to step S**505** (NO in step S**504**).

In step S**505**, the CPU **111** determines whether or not an instruction to stop the moving image shooting mode is received.

For example, if either one of the power switch **112***a* and the moving image shooting mode button **112***b* is turned OFF, the CPU **111** determines that the instruction to stop the moving image shooting mode is received. If the instruction to stop the moving image shooting mode is received, the CPU **111** ends the moving image output process D**1** (YES in step S**505**).

For example, if all of the power switch **112***a* and the moving image shooting mode button **112***b* are ON, the CPU **111** determines that the instruction to stop the moving image shooting mode is not received. If the instruction to stop the moving image shooting mode is not received, the CPU **111** returns back from step S**505** to step S**504** (NO in step S**505**).

In step S**506**, the CPU **111** determines whether or not the predetermined condition J**2** is satisfied. The predetermined condition J**2** indicates, for example, that the view assistance function of the HDMI controller **108** is ON.

If the view assistance function of the HDMI controller **108** is ON, the CPU **111** determines that the predetermined condition J**2** is satisfied. If the predetermined condition J**2** is satisfied, the CPU **111** proceeds from step S**506** to step S**508** (YES in step S**506**).

If the view assistance function of the HDMI controller **108** is OFF, the CPU **111** determines that the predetermined condition J**2** is not satisfied. If the predetermined condition J**2** is not satisfied, the CPU **111** proceeds from step S**506** to step S**507** (NO in step S**506**).

In step S**507**, the CPU **111** transmits a second start output command to the HDMI controller **108**. The HDMI controller **108**, which receives the second start output command, transmits the flat-image-quality image data, which is supplied from the second image processor **103** to the HDMI controller **108**, to the external apparatus EX**1** via the HDMI connector **108***a*. If the external apparatus EX**1** acts as an external storage, the flat-image-quality image data transmitted from the HDMI controller **108** can be recorded on a recording medium of the external apparatus EX**1**. If the external apparatus EX**1** acts as an external display, an image corresponding to the flat-image-quality image data transmitted from the HDMI controller **108** can be displayed on a display device of the external apparatus EX**1**. Thus, in a case where the flat image quality mode is ON but where the view assistance function of the HDMI controller **108** is OFF, the flat-image-quality image data is output from the HDMI controller **108**. Therefore, in a case where the flat image quality mode is ON but where the view assistance function of the HDMI controller **108** is OFF, output image quality of the HDMI controller **108** is the flat image quality.

If the second start output command is transmitted to the HDMI controller **108**, the CPU **111** proceeds from step S**507** to step S**504**.

In step S**508**, the CPU **111** transmits a third start output command to the HDMI controller **108**. The HDMI controller **108**, which receives the third start output command, transmits the image-quality-adjusted image data, which is supplied from the image quality adjustment unit **104** to the HDMI controller **108**, to the external apparatus EX**1** via the HDMI connector **108***a*. If the external apparatus EX**1** acts as an external storage, the image-quality-adjusted image data transmitted from the HDMI controller **108** can be recorded on a recording medium of the external apparatus EX**1**. If the external apparatus EX**1** acts as an external display, an image corresponding to the image-quality-adjusted image data transmitted from the HDMI controller **108** can be displayed on a display device of the external apparatus EX**1**. Thus, in a case where the flat image quality mode is ON and where the view assistance function of the HDMI controller **108** is also ON, the image-quality-adjusted image data is output from the HDMI controller **108**. Therefore, in a case where the flat image quality mode is ON and where the view assistance function of the HDMI controller **108** is also ON, output image quality of the HDMI controller **108** is the image quality obtained by applying the predetermined post processing.

If the third start output command is transmitted to the HDMI controller **108**, the CPU **111** proceeds from step S**508** to step S**504**.

Thus, according to the first exemplary embodiment, the flat image quality mode is set to ON or OFF, and the view assistance function of the HDMI controller **108** is set to ON or OFF, whereby a user can freely change output image quality of the HDMI controller **108**. For example, the HDMI controller **108** can be selected as an external output unit which outputs image data whose image quality is obtained by applying the predetermined post processing. Consequently, even in a case where the flat-image-quality image data suitable for the predetermined post processing is generated, image data, whose image quality is obtained by applying the predetermined post processing, can be output from the HDMI controller **108**.

A moving image output process D**2** performed in the image capture apparatus **100** according to the first exemplary embodiment will be described with reference to FIG. **7**. FIG. **7** is a flowchart for illustrating the moving image output process D**2** performed in the image capture apparatus **100** according to the first exemplary embodiment. The CPU **111** controls the moving image output process D**2** by executing the program Pg**5** stored in the memory A **110**.

In step S**701**, the CPU **111** determines whether or not an instruction to start the moving image shooting mode is received.

For example, if the power switch **112***a* is ON and the moving image shooting mode button **112***b* has been turned ON, the CPU **111** determines that the instruction to start the moving image shooting mode is received. If the instruction to start the moving image shooting mode is received, the CPU **111** proceeds from step **S701** to step **S702** (YES in step **S701**).

For example, if the power switch **112***a* is ON but the moving image shooting mode button **112***b* has not been turned ON, the CPU **111** determines that the instruction to start the moving image shooting mode is not received. If the instruction to start the moving image shooting mode is not received, the CPU **111** repeats step **S701** (NO in step **S701**).

In step **S702**, the CPU **111** determines whether the flat image quality mode is ON or OFF.

If the flat image quality mode is ON, the CPU **111** proceeds from step **S702** to step **S706** (YES in step **S702**). If the flat image quality mode is ON, the flat-image-quality image data are generated in the image capture apparatus **100**.

If the flat image quality mode is OFF, the CPU **111** proceeds from step **S702** to step **S703** (NO in step **S702**). If the flat image quality mode is OFF, the standard-quality image data are generated in the image capture apparatus **100**.

In step **S703**, the CPU **111** transmits a fourth start output command to the USB controller **109**. The USB controller **109**, which receives the fourth start output command, transmits the standard-quality image data, which is supplied from the first image processor **102** to the USB controller **109**, to the external apparatus EX**2** via the USB connector **109***a*. If the external apparatus EX**2** acts as an external storage, the standard-quality image data transmitted from the USB controller **109** can be recorded on a recording medium of the external apparatus EX**2**. If the external apparatus EX**2** acts as an external display, an image corresponding to the standard-quality image data transmitted from the USB controller **109** can be displayed on a display device of the external apparatus EX**2**. Thus, if the flat image quality mode is OFF, the standard-quality image data is output from the USB controller **109**. Therefore, if the flat image quality mode is OFF, output image quality of the USB controller **109** is the standard image quality.

If the fourth start output command is transmitted to the USB controller **109**, the CPU **111** proceeds from step **S703** to step **S704**.

In step **S704**, the CPU **111** determines whether or not the setting information about the flat image quality mode has been changed during the moving image shooting mode. In step **S704**, the CPU **111** determines whether or not the setting information about the view assistance function of the USB controller **109** has been changed during the moving image shooting mode.

If the setting information about the flat image quality mode has been changed during the moving image shooting mode, the CPU **111** returns back from step **S704** to step **S702** (YES in step **S704**). If the setting information about the view assistance function of the USB controller **109** has been changed during the moving image shooting mode, the CPU **111** also returns back from step **S704** to step **S702** (YES in step **S704**).

If the setting information about the flat image quality mode has not been changed during the moving image shooting mode, the CPU **111** proceeds from step **S704** to step **S705** (NO in step **S704**). If the setting information about the view assistance function of the USB controller **109** has not been changed during the moving image shooting mode, the CPU **111** also proceeds from step **S704** to step **S705** (NO in step **S704**).

In step **S705**, the CPU **111** determines whether or not an instruction to stop the moving image shooting mode is received.

For example, if either one of the power switch **112***a* and the moving image shooting mode button **112***b* is turned OFF, the CPU **111** determines that the instruction to stop the moving image shooting mode is received. If the instruction to stop the moving image shooting mode is received, the CPU **111** ends the moving image output process D**2** (YES in step **S705**).

For example, if all of the power switch **112***a* and the moving image shooting mode button **112***b* are ON, the CPU **111** determines that the instruction to stop the moving image shooting mode is not received. If the instruction to stop the moving image shooting mode is not received, the CPU **111** returns back from step **S705** to step **S704** (NO in step **S705**).

In step **S706**, the CPU **111** determines whether or not the predetermined condition J**3** is satisfied. The predetermined condition J**3** indicates, for example, that the view assistance function of the USB controller **109** is ON.

If the view assistance function of the USB controller **109** is ON, the CPU **111** determines that the predetermined condition J**3** is satisfied. If the predetermined condition J**3** is satisfied, the CPU **111** proceeds from step **S706** to step **S708** (YES in step **S706**).

If the view assistance function of the USB controller **109** is OFF, the CPU **111** determines that the predetermined condition J**3** is not satisfied. If the predetermined condition J**3** is not satisfied, the CPU **111** proceeds from step **S706** to step **S707** (NO in step **S706**).

In step **S707**, the CPU **111** transmits a fifth start output command to the USB controller **109**. The USB controller **109**, which receives the fifth start output command, transmits the flat-image-quality image data, which is supplied from the second image processor **103** to the USB controller **109**, to the external apparatus EX**2** via the USB connector **109***a*. If the external apparatus EX**2** acts as an external storage, the flat-image-quality image data transmitted from the USB controller **109** can be recorded on a recording medium of the external apparatus EX**2**. If the external apparatus EX**2** acts as an external display, an image corresponding to the flat-image-quality image data transmitted from the USB controller **109** can be displayed on a display device of the external apparatus EX**2**. Thus, in a case where the flat image quality mode is ON but where the view assistance function of the USB controller **109** is OFF, the flat-image-quality image data is output from the USB controller **109**. Therefore, in a case where the flat image quality mode is ON but where the view assistance function of the USB controller **109** is OFF, output image quality of the USB controller **109** is the flat image quality.

If the fifth start output command is transmitted to the USB controller **109**, the CPU **111** proceeds from step **S707** to step **S704**.

In step **S708**, the CPU **111** transmits a sixth start output command to the USB controller **109**. The USB controller **109**, which receives the sixth start output command, transmits the image-quality-adjusted image data, which is supplied from the image quality adjustment unit **104** to the USB controller **109**, to the external apparatus EX**2** via the USB connector **109***a*. If the external apparatus EX**2** acts as an external storage, the image-quality-adjusted image data transmitted from the USB controller **109** can be recorded on a recording medium of the external apparatus EX**2**. If the external apparatus EX**2** acts as an external display, an image corresponding to the image-quality-adjusted image data transmitted from the USB controller **109** can be displayed on a display device of the external apparatus EX**2**. Thus, in a case where the flat image quality mode is ON and where the view assistance

function of the USB controller **109** is also ON, the image-quality-adjusted image data is output from the USB controller **109**. Therefore, in a case where the flat image quality mode is ON and where the view assistance function of the USB controller **109** is also ON, output image quality of the USB controller **109** is the image quality obtained by applying the predetermined post processing.

If the sixth start output command is transmitted to the USB controller **109**, the CPU **111** proceeds from step S**708** to step S**704**.

Thus, according to the first exemplary embodiment, the flat image quality mode is set to ON or OFF, and the view assistance function of the USB controller **109** is set to ON or OFF, whereby a user can freely change output image quality of the USB controller **109**. For example, the USB controller **109** can be selected as an external output unit which outputs image data whose image quality is obtained by applying the predetermined post processing. Consequently, even in a case where the flat-image-quality image data suitable for the predetermined post processing is generated, image data, whose image quality is obtained by applying the predetermined post processing, can be output from the USB controller **109**.

Various changes may be made to the first exemplary embodiment. For example, the predetermined condition J**2** used in the moving image output process D**1** may be changed to a condition that the view assistance function of the display device **107** is ON. In this case, the predetermined condition J**2** used in the moving image output process D**1** is the same as the predetermined condition J**1** used in the moving image recording process B**1**.

For example, the predetermined condition J**2** used in the moving image output process D**1** may be changed to a condition that the view assistance function of the HDMI controller **108** is ON and that the external output size of the HDMI controller **108** is equal to or more than a predetermined image size. The predetermined image size may be, for example, "1920×1080", but is not limited to this.

For example, the predetermined condition J**2** used in the moving image output process D**1** may be changed to a condition that the view assistance function of the HDMI controller **108** is ON and that the external output size of the HDMI controller **108** is less than the moving image recording size. For example, the CPU **111** determines that the predetermined condition J**2** is satisfied if the following conditions are satisfied: the view assistance function of the HDMI controller **108** is ON; the external output size of the HDMI controller **108** is "1920×1080"; and the moving image recording size is "4096×2160". In addition, for example, if the moving image recording size is equal to the external output size of the HDMI controller **108**, the CPU **111** determines that the predetermined condition J**2** is not satisfied.

For example, the predetermined condition J**2** used in the moving image output process D**1** may be changed to a condition that the view assistance function of the HDMI controller **108** is ON and that the shooting information adding function is ON. If the shooting information adding function is ON, the HDMI controller **108** superimposes predetermined shooting information on image data that is to be output from the HDMI controller **108**. If the shooting information adding function is OFF, the HDMI controller **108** does not superimpose the predetermined shooting information on image data that is to be output from the HDMI controller **108**.

The predetermined condition J**2** used in the moving image output process D**1** may be a condition selected from various conditions by a user.

For example, the predetermined condition J**3** used in the moving image output process D**2** may be changed to a condition that the view assistance function of the display device **107** is ON. In this case, the predetermined condition J**3** used in the moving image output process D**2** is the same as the predetermined condition J**1** used in the moving image display process C**1** (see step S**406**).

For example, the predetermined condition J**3** used in the moving image output process D**2** may be changed to a condition that the view assistance function of the USB controller **109** is ON and that the external output size of the USB controller **109** is equal to or more than a predetermined image size. The predetermined image size may be, for example, "1920×1080", but is not limited to this.

For example, the predetermined condition J**3** used in the moving image output process D**2** may be changed to a condition that the view assistance function of the USB controller **109** is ON and that the external output size of the USB controller **109** is less than the moving image recording size. For example, the CPU **111** determines that the predetermined condition J**3** is satisfied if the following conditions are satisfied: the view assistance function of the USB controller **109** is ON; the external output size of the USB controller **109** is "1920×1080"; and the moving image recording size is "4096×2160". In addition, for example, if the moving image recording size is equal to the external output size of the USB controller **109**, the CPU **111** determines that the predetermined condition J**3** is not satisfied.

For example, the predetermined condition J**3** used in the moving image output process D**2** may be changed to a condition that the view assistance function of the USB controller **109** is ON and that the shooting information adding function is ON. If the shooting information adding function is ON, the USB controller **109** superimposes predetermined shooting information on image data that is to be output from the USB controller **109**. If the shooting information adding function is OFF, the USB controller **109** does not superimpose the predetermined shooting information on image data that is to be output from the USB controller **109**.

The predetermined condition J**3** used in the moving image output process D**2** may be a condition selected from various conditions by a user.

For example, the first exemplary embodiment may have a configuration in which the predetermined condition J**3** is the same as the predetermined condition J**2**. In addition, for example, the first exemplary embodiment may have a configuration in which the predetermined condition J**3** is also changed to match the predetermined condition J**2** if the predetermined condition J**2** is changed as described above.

The predetermined condition J**1** used in the moving image display process C**1** may be changed to a condition that the view assistance function of the HDMI controller **108** is ON. In this case, the predetermined condition J**1** used in the moving image display process C**1** is the same as the predetermined condition J**2** used in the moving image output process D**1**.

The predetermined condition J**1** used in the moving image display process C**1** may be changed to a condition that the view assistance function of the USB controller **109** is ON. In this case, the predetermined condition J**1** used in the moving image display process C**1** is the same as the predetermined condition J**3** used in the moving image output process D**2**.

The predetermined condition J**1** used in the moving image display process C**1** may be changed to a condition that all of the view assistance functions of the HDMI controller **108** and the USB controller **109** are ON.

The predetermined condition J**1** used in the moving image display process C**1** may be a condition selected from various conditions by a user.

For example, the first exemplary embodiment may have a configuration in which the predetermined condition J1 is the same as the predetermined condition J2. In addition, for example, the first exemplary embodiment may have a configuration in which the predetermined condition J1 is also changed to match the predetermined condition J2 if the predetermined condition J2 is changed as described above.

For example, the first exemplary embodiment may have a configuration in which the predetermined condition J1 is the same as the predetermined condition J3. In addition, for example, the first exemplary embodiment may have a configuration in which the predetermined condition J1 is also changed to match the predetermined condition J3 if the predetermined condition J3 is changed as described above.

In the first exemplary embodiment, the case where the image capture apparatus **100** has the HDMI controller **108** and the USB controller **109** is described. However, external output units included in the image capture apparatus **100** are not limited to these. For example, the HDMI controller **108** or the USB controller **109** may be changed to an external output unit based on at least one of the SDI (Serial Digital Interface) standard, the DisplayPort standard, and the Thunderbolt standard. In addition, for example, the HDMI controller **108** or the USB controller **109** may be changed to an external output unit based on at least one of the wired LAN standards and the wireless LAN standards. Needless to say, an external output unit based on a standard other than these standards may be used instead of the HDMI controller **108** or the USB controller **109**.

In the first exemplary embodiment, the HDMI controller **108** or the USB controller **109** may be changed to an external output unit which outputs an analog video signal. In this case, the standard-quality or the flat-image-quality image data is output as the analog video signal.

In the first exemplary embodiment, the number of external output units included in the image capture apparatus **100** is not limited to four, and may be at least one.

Second Exemplary Embodiment

Various functions and processes described in the first exemplary embodiment can be achieved with a personal computer, a microcomputer, a CPU (Central Processing Unit), or the like using a program. Hereinafter, the personal computer, the microcomputer, the CPU, or the like is called a "computer X" in the second exemplary embodiment. In the second exemplary embodiment, a program for controlling the computer X and for achieving the various functions and processes described in the first exemplary embodiment is called a "program Y".

The various functions and processes described in the first exemplary embodiment are performed with the computer X executing the program Y. In this case, the program Y is supplied to the computer X through a computer-readable storage medium. The computer-readable storage medium in the second exemplary embodiment includes at least one of a hard disk drive, an optical disk, a CD-ROM, a CD-R, a memory card, a ROM, a RAM, and the like. In addition, the computer-readable storage medium in the second exemplary embodiment is a non-transitory storage medium.

While the present invention has been described with reference to exemplary embodiments, it is to be understood that the present invention is not limited to the exemplary embodiments. The scope of the following claims is to be accorded the broadest interpretation so as to encompass all modifications and equivalent structures.

What is claimed is:

1. An image capture apparatus comprising:

an image capture unit that generates first image data using an image capture device;

an image processing unit that generates second image data from the first image data so that an image quality of the second image data corresponds to a first image quality corresponding to a flat image quality;

an image quality adjusting unit that converts the second image data into third image data by adjusting the image quality of the second image data to be a second image quality different from the first image quality, the second image quality depending upon a post processing that is selected from multiple types of post processing by a user; and

an output unit that outputs the third image data from the image capture apparatus to an external apparatus instead of the second image data when a predetermined condition is satisfied.

2. The image capture apparatus according to claim **1**, further comprising:

a display control unit that causes a display device to display an image corresponding to the third image data instead of an image corresponding to the second image data when a second condition is satisfied.

3. The image capture apparatus according to claim **2**, wherein the second condition is equal to the predetermined condition.

4. The image capture apparatus according to claim **2**, wherein the second condition is different from the predetermined condition.

5. The image capture apparatus according to claim **2**, wherein the second condition is a user settable condition.

6. The image capture apparatus according to claim **2**, wherein when the second condition is not satisfied, the display control unit causes the display device to display the image corresponding to the second image data instead of the image corresponding to the third image data.

7. The image capture apparatus according to claim **1**, further comprising:

a second output unit that outputs the third image data from the image capture apparatus to a second external apparatus instead of the second image data when a third condition is satisfied.

8. The image capture apparatus according to claim **7**, wherein the third condition is equal to the predetermined condition.

9. The image capture apparatus according to claim **7**, wherein the third condition is different from the predetermined condition.

10. The image capture apparatus according to claim **7**, wherein the third condition is a user settable condition.

11. The image capture apparatus according to claim **7**, wherein when the third condition is not satisfied, the second output unit outputs the second image data from the image capture apparatus to the second external apparatus instead of the third image data.

12. The image capture apparatus according to claim **1**, wherein the predetermined condition is a user settable condition.

13. The image capture apparatus according to claim **1**, wherein when the predetermined condition is not satisfied, the output unit outputs the second image data from the image capture apparatus to the external apparatus instead of the third image data.

14. The image capture apparatus according to claim **1**, further comprising:

a recording control unit that records the second image data on a recording medium.

15. A method comprising:

generating first image data using an image capture device;

generating second image data from the first image data so that an image quality of the second image data corresponds to a first image quality corresponding to a flat image quality;

converting the second image data into third image data by adjusting the image quality of the second image data to be a second image quality different from the first image quality, the second image quality depending upon post processing that is selected from multiple types of post processing by a user; and

outputting the third image data from an image capture apparatus to an external apparatus instead of the second image data when a predetermined condition is satisfied.

16. The method according to claim **15**, further comprising:

causing a display device to display an image corresponding to the third image data instead of an image corresponding to the second image data when a second condition is satisfied.

17. The method according to claim **16**, wherein the second condition is equal to the predetermined condition.

18. The method according to claim **16**, wherein the second condition is different from the predetermined condition.

19. The method according to claim **16**, wherein the second condition is a user settable condition.

20. The method according to claim **16**, wherein when the second condition is not satisfied, the image corresponding to the second image data is displayed on the display device instead of the image corresponding to the third image data.

21. The method according to claim **15**, further comprising:

outputting the third image data from the image capture device to a second external apparatus instead of the second image data when a third condition is satisfied.

22. The method according to claim **21**, wherein the third condition is equal to the predetermined condition.

23. The method according to claim **21**, wherein the third condition is different from the predetermined condition.

24. The method according to claim **21**, wherein the third condition is a user settable condition.

25. The method according to claim **21**, wherein when the third condition is not satisfied, the second image data is outputted from the image capture apparatus to the second external apparatus instead of the third image data.

26. The method according to claim **15**, wherein the predetermined condition is a user settable condition.

27. The method according to claim **15**, wherein when the predetermined condition is not satisfied, the second image data is outputted from the image capture apparatus to the external apparatus instead of the third image data.

28. The method according to claim **15**, further comprising:

recording the second image data on a recording medium.

29. A non-transitory storage medium that stores a program for causing a computer to execute a method, the method comprising:

generating first image data using an image capture device;

generating second image data from the first image data so that an image quality of the second image data corresponds to a first image quality corresponding to a flat image quality;

converting the second image data into third image data by adjusting the image quality of the second image data to be a second image quality different from the first image quality, the second image quality depending upon post processing that is selected from multiple types of post processing by a user; and

outputting the third image data from an image capture apparatus to an external apparatus instead of the second image data when a predetermined condition is satisfied.

* * * * *